

## **LISTING OF THE CLAIMS**

### **Amendments to the Claims:**

Claims 1-17 (Canceled).

18. (Currently Amended) A method for developing failure prediction software for a storage system, the method comprising:

assisting an end-user of a storage system in generating a failure prediction

algorithm for the storage system, the failure prediction algorithm

comprising fuzzy logic rules, the failure prediction algorithm stored in a natural language format;

generating machine-readable code from the stored failure prediction algorithm in

response to ~~user~~ input from an end-user, the machine-readable code

configured to execute on the storage system;

testing the machine-readable code with sample data to produce a result in

response to ~~user~~ input from an end-user; and

selectively revising the failure prediction algorithm in response to ~~user~~ input from

an end-user such that the result corresponds to an expected result; and

tuning the failure prediction algorithm dynamically at runtime by adjusting a

fuzzy variable definition in response to input from an end-user of the

storage system.

19. (Original) The method of claim 18, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.

20. (Original) The method of claim 18, wherein certain linguistic variables comprise less than three terms.
21. (Canceled)
22. (Canceled)
23. (Original) The method of claim 18, further comprising revising the failure prediction algorithm by way of a text editor.
24. (Original) The method of claim 18, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.
25. (Currently Amended) A method for predicting component failure within a storage system, the method comprising:
- gathering performance data for a storage system;
  - executing a failure prediction algorithm on the performance data to produce a result, the failure prediction algorithm comprising fuzzy logic rules generated by an end-user of the storage system, the fuzzy logic rules defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field;
  - tuning the failure prediction algorithm dynamically at runtime by adjusting a fuzzy variable definition in response to input from an end-user of the storage system; and

selectively forecasting failure of one or more components of the storage system in response to the result.

26. (Cancelled)

27. (Original) The method of claim 25, further comprising mapping the result to one of a plurality of predefined recommendations.

28. (Original) The method of claim 25, further comprising producing a notification in response to the result.

29. (Original) The method of claim 25, further comprising pre-processing performance data to provide input data for the failure prediction algorithm.

Claims 30-40 (Cancelled).

41. (New) An apparatus for developing failure prediction software for a storage system, comprising:

an editor to assist an end-user of a storage system in generating a failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a natural language format;

a code generator to generate machine-readable code from the stored failure prediction algorithm in response to input from an end-user;

a test module to test the machine-readable code with sample data to produce a result in response to input from an end-user;

a revision module to allow revisions of the failure prediction algorithm in response to input from an end-user such that the result corresponds to an expected result;

an interface to tune the failure prediction algorithm dynamically at runtime by adjusting a fuzzy variable definition in response to input from an end user of the storage system.

42. (New) The apparatus of claim 41, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.

43. (New) The apparatus of claim 41, wherein the test module further tunes the failure prediction algorithm by adjusting a fuzzy variable definition in response to user input.

44. (New) The apparatus of claim 41, wherein the machine-readable code is configured to execute on a storage system.

45. (New) The apparatus of claim 41, wherein the revision module comprises a text editor to revise the failure prediction algorithm in response to user input.

46. (New) The apparatus of claim 41, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.

47. (New) An apparatus for predicting component failure within a storage system, the apparatus comprising:
- a performance monitor to gather performance data for a storage system;
  - a processor to execute a failure prediction algorithm on the performance data to produce a result, the failure prediction algorithm comprising fuzzy logic rules generated by an end-user of the storage system;
  - a determination module to selectively forecast failure of one or more components of the storage system in response to the result; and
  - an interface to dynamically adjust a predefined quality threshold of the determination module at runtime in response to input from an end-user, thereby adjusting the degree of data loss risk and remedial costs associated with a forecasted failure of one or more components.
48. (New) The apparatus of claim 47, wherein the interface further adjusts a fuzzy variable definition to tune the failure prediction algorithm in response to input from an end-user.
49. (New) The apparatus of claim 48, further comprising a pre-processor to pre-process performance data to provide input data for the failure prediction algorithm.
50. (New) The apparatus of claim 49, wherein the determination module maps the result from the failure prediction algorithm to one of a plurality of predefined recommendations.

51. (New) The apparatus of claim 50, further comprising a notification module to produce a notification in response to the result.
52. (New) A system for predicting component failure within a storage system, the system comprising:
- a controller to control and manage data transactions with a host;
  - a communication module to exchange data between the host and a storage media;
  - a drive mechanism to read data from the storage media and write data to the storage media; and
  - an analysis module to execute machine-readable code programmed to selectively predict failure of the storage media and the drive mechanism in response to a result from a failure prediction algorithm comprising fuzzy logic rules and performance data associated with the storage media and the drive mechanism, the machine-readable code comprising an interface to selectively adjust a fuzzy variable definition to tune the failure prediction algorithm dynamically at runtime in response to input from an end-user of the storage media and the drive mechanism.
53. (New) The system of claim 52, wherein the machine-readable code further comprises a pre-processor to pre-process performance data to provide input data for the failure prediction algorithm.

54. (New) The system of claim 53, wherein the machine-readable code further comprises a determination module to map a result from the failure prediction algorithm to one of a plurality of predefined recommendations.
55. (New) The system of claim 54, wherein the machine-readable code further comprises a notification module to produce a notification in response to the result.
56. (New) An apparatus for developing failure prediction software for a storage system, comprising:
- means for assisting an end-user of a storage system in generating a failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a natural language format;
  - means for generating machine-readable code from the stored failure prediction algorithm, the machine-readable code configured to execute on the storage system;
  - means for testing the machine-readable code to produce a result;
  - means for selectively revising the failure prediction algorithm in response to input from an end-user such that the result corresponds to an expected result;
  - and
  - means for dynamically tuning the failure prediction algorithm at runtime by adjusting a fuzzy variable definition in response to input from an end-user of the storage system.

57. (New) The apparatus of claim 56, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.
58. (New) The apparatus of claim 56, wherein the machine-readable code is configured to execute on a storage system.
59. (New) The apparatus of claim 56, further comprising means for revising the failure prediction algorithm by way of a text editor.
60. (New) The apparatus of claim 56, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.
61. (New) An article of manufacture comprising a program storage medium readable by a processor and embodying one or more instructions executable by a processor to perform a method for developing failure prediction software for a storage system, the method comprising:
- assisting an end-user of a storage system in generating a failure prediction algorithm for the storage system, the failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a natural language format;
  - generating machine-readable code from the stored failure prediction algorithm in response to input from an end-user, the machine-readable code configured to execute on the storage system;



testing the machine-readable code with sample data to produce a result in response to input from an end-user;  
selectively revising the failure prediction algorithm in response to input from an end-user such that the result corresponds to an expected result;  
tuning the failure prediction algorithm dynamically at runtime by adjusting a fuzzy variable definition in response to input from an end-user of the storage system.

62. (New) The article of manufacture of claim 61, wherein the fuzzy logic rules comprise simple conditional statements that include subjects, adjectives, and verbs that are commonly used to describe error conditions of a storage system.
63. (New) The article of manufacture of claim 62, wherein the method further comprises revising the failure prediction algorithm by way of a text editor.
64. (New) The article of manufacture of claim 63, wherein revising the failure prediction algorithm comprises adding fuzzy logic rules to the failure prediction algorithm.